

IN THE CLAIMS:

1 1. – 5. (Cancelled)

1 6. (Previously Presented) A method of claiming ownership of a plurality of disks by a
2 network device in a network storage system, comprising:

3 writing ownership information to a predetermined area of each disk;

4 setting a small computer system interface (SCSI) reservation tag for each disk to a
5 state of network device ownership to provide a two part indicia of ownership for each
6 disk, where the two part indicia of ownership are both written to each disk;

7 identifying all disks owned by the network device using ownership information
8 written to the predetermined area of each disk of the plurality disks and, for each identi-
9 fied disk, if a mismatch occurs between the ownership information on the predetermined
10 area of the disk and the ownership defined by the SCSI reservation tag, then using the
11 ownership information written to the predetermined area of the disk as definite ownership
12 data.

1 7. (Original) The method of claim 6 wherein the ownership information further com-
2 prises a serial number of a network device.

1 8. (Original) The method of claim 6, wherein the network device comprises a file server.

1 9. (Previously Presented) A network storage system comprising:

2 a plurality of network devices;

3 one or more switches, each network device connected to at least one of the one or
4 more switch;

5 a plurality of disks having a first ownership attribute written to a predetermined
6 area of each disk and a second ownership attribute in the form of a small computer sys-

7 tem interface (SCSI) reservation tag, wherein the first and second ownership attribute are
8 written to each disk, each disk connected to at least one of the plurality of switches;
9 each network device of the plurality of network devices identifies all disks owned
10 by that network device using ownership information written to the predetermined area of
11 each disk of the plurality disks and, for each identified disk, if a mismatch occurs be-
12 tween the ownership information on the predetermined area of the disk and the ownership
13 defined by the SCSI reservation tag, then using the ownership information written to the
14 predetermined area of the disk as definite ownership data.

1 10. (Cancelled)

1 11. (Previously Presented) The network storage system of claim 9, wherein the small
2 computer system interface reservation tag is a small computer system interface level 3
3 persistent reservation tag.

1 12. (Previously Presented) The networked storage system of claim 9, wherein the small
2 computer system interface reservation tag is set such that only the network device may
3 write to the disk.

1 13. (Previously Presented) The network storage system of claim 9, wherein the first
2 ownership attribute further comprises a serial number of the network device that owns
3 that particular disk.

1 14. (Previously Presented) The network storage system of claim 9, wherein each of the
2 plurality of file servers can read data from each of the plurality of disks.

1 15. (Previously Presented) The network storage system of claim 9, wherein only a net-
2 work device that owns one of the plurality of disks can write data to the one disk.

3 16. (Original) The network storage system of claim 9, wherein the network devices com-
4 prise file servers.

1 17. (Previously Presented) A network storage system comprising:
2 a plurality of network devices;
3 one or more switches;
4 a plurality of disks; and
5 means for writing ownership information to a predetermined area of each disk of
6 the plurality of disks;
7 means for setting a small computer system interface reservation tag of each disk
8 to provide a two part indicia of ownership, where the two part indicia of ownership are
9 written to each disk; and
10 means for identifying all disks owned by each network device using ownership in-
11 formation written to the predetermined area of each disk of the plurality disks and, for
12 each identified disk, if a mismatch occurs between the ownership information on the pre-
13 determined area of the disk and the ownership defined by the SCSI reservation tag, then
14 using the ownership information written to the predetermined area of the disk as definite
15 ownership data.

1 18. (Cancelled)

1 19. (Original) The network storage system of claim 17, wherein the network devices
2 comprise file servers.

1 20. (Currently Amended) A network storage system comprising:
2 one or more switches interconnected to form a switching fabric;

3 a plurality of disks, each of the disks connected to at least one of the switches,
4 each disk storing a first ownership attribute to a predetermined area of a disk and
5 each disk associated with a second ownership attribute in the form of a small
6 computer system interface reservation; and
7 one or more network devices, interconnected with the switching fabric, each of
8 the network devices being adapted configured to own a predetermined set of disks of the
9 plurality of disks through use of the first and second ownership attributes, wherein each
10 network device identifiesidentifies all disks owned by the network device using owner-
11 ship information written to the predetermined area of each disk of the plurality disks and,
12 for each identified disk, if a mismatch occurs between the ownership information on the
13 predetermined area of the disk and the ownership defined by the SCSI reservation tag,
14 then using the ownership information written to the predetermined area of the disk as
15 definite ownership data.

1 21. (Cancelled)

1 22. (Cancelled)

1 23. (Previously Presented) The network storage system of claim 20, wherein the first
2 ownership attribute further comprises a serial number of one of the one or more network
3 devices.

1 24. (Previously Presented) The network storage system of claim 20, wherein the small
2 computer system interface reservation is a small computer system interface level 3 persis-
3 tent reservation.

- 1 25. (Original) The network storage system of claim 20, wherein each of the network de-
2 vices further comprises a disk ownership table, the disk ownership table containing own-
3 ership data for each of the disks.
- 1 26. (Original) The network storage system of claim 25, wherein the ownership table fur-
2 ther comprises a world wide name for each of the disks, the world wide name being used
3 for identification of each of the disks.
- 1 27. (Previously Presented) A computer-readable medium, including program instructions
2 executing on network device, for performing the steps of:
 - 3 writing ownership information to a predetermined area of a disk;
 - 4 setting a small computer system interface reservation tag for the disk to a state of
 - 5 network device ownership to provide a two part indicia of ownership for the disk, where
 - 6 the two part indicia of ownership are both written to the disk; and
 - 7 identifying all disks owned by the network device using ownership information
 - 8 written to the predetermined area of each disk of the plurality disks and, for each identi-
9 fied disk, if a mismatch occurs between the ownership information on the predetermined
10 area of the disk and the ownership defined by the SCSI reservation tag, then using the
11 ownership information written to the predetermined area of the disk as definite ownership
12 data.
- 1 28. (Previously Presented) A method for a network device to manage ownership of one
2 or more storage devices in a network storage system, comprising:
 - 3 reading ownership information from a predetermined area of each storage device;
 - 4 in response to reading the ownership information, creating an ownership table that
 - 5 identifies the one or more storage devices owned by the network device;
 - 6 reading a small computer system interface (SCSI) reservation tag from each stor-
7 age device;

8 comparing the SCSI reservation tag to the ownership information of the same
9 storage device and, if there is not a match, changing the SCSI reservation tag to match the
10 ownership information; and

11 configuring the one or more storage devices identified in the ownership table into
12 at least one volume for use by the network device.

1 29. (Previously Presented) The method of claim 28 further comprising:
2 setting ownership information at the predetermined area of each storage device.

1 30. (Previously Presented) The method of claim 28 wherein the step of configuring fur-
2 ther comprises:

3 organizing the one or more storage devices into at least one Redundant Array of
4 Independent Disks (RAID) group.

1 31. (Previously Presented) The method of claim 28 further comprising:
2 wherein the predetermined area of the one or more storage devices is sector zero
3 of the one or more storage devices.

1 32. (Previously Presented) The method of claim 28 further comprising:
2 wherein the ownership information is a serial number of the network device that
3 owns that particular storage device.

1 33. (Previously Presented) The method of claim 28 further comprising:
2 wherein the ownership table includes a world wide name for each of the storage
3 devices, the world wide name being used to identify each of the storage devices.

1 34. (Previously Presented) A network device for managing ownership of one or more
2 storage devices in a network storage system, comprising:

3 means for reading ownership information from a predetermined area of each stor-
4 age device;
5 in response to reading the ownership information, means for creating an owner-
6 ship table that identifies the one or more storage devices owned by the network device;
7 means for reading a small computer system interface (SCSI) reservation tag from
8 each storage device;
9 means for comparing the SCSI reservation tag to the ownership information of the
10 same storage device and, if there is not a match, changing the SCSI reservation tag to
11 match the ownership information; and
12 means for configuring the one or more storage devices identified in the ownership
13 table into at least one volume for use by the network device.

1 35. (Previously Presented) A computer readable medium containing executable program
2 instructions for managing ownership of one or more storage devices in a network storage
3 system, the executable program instructions comprising program instructions for:
4 reading ownership information from a predetermined area of each storage device;
5 in response to reading the ownership information, creating an ownership table that
6 identifies the one or more storage devices owned by the network device;
7 reading a small computer system interface (SCSI) reservation tag from each stor-
8 age device;
9 comparing the SCSI reservation tag to the ownership information of the same
10 storage device and, if there is not a match, changing the SCSI reservation tag to match the
11 ownership information; and
12 configuring the one or more storage devices identified in the ownership table into
13 at least one volume for use by the network device.

1 36. (Previously Presented) A network storage system, comprising:

2 one or more storage devices, each storage device having a predetermined area for
3 storing ownership information and each storage device having a small computer system
4 interface (SCSI) reservation tag;

5 at least one network device having an ownership table constructed based upon
6 the ownership information from each storage device;

7 the at least one network device having an ownership layer for comparing the SCSI
8 reservation tag to the ownership information of the same storage device and, if there is
9 not a match, changing the SCSI reservation tag to match the ownership information; and

10 the at least one network device having a disk storage layer for configuring the one
11 or more storage devices identified in the ownership table into at least one volume for use
12 by the network device.

1 37. (Previously Presented) The network storage system of claim 36 further comprising:

2 the ownership layer adapted to set ownership information at the predetermined
3 area of each storage device.

1 38. (Previously Presented) The network storage system of claim 36 further comprising:

2 the disk storage layer organizing the one or more storage devices into at least one
3 Redundant Array of Independent Disks (RAID) group.

1 39. (Previously Presented) The network storage system of claim 36 further comprising:

2 wherein the predetermined area of the one or more storage devices is sector zero
3 of the one or more storage devices.

1 40. (Previously Presented) The network storage system of claim 36 further comprising:

2 wherein the ownership information is a serial number of the network device that
3 owns that particular storage device.

- 1 41. (Previously Presented) The network storage system of claim 36 further comprising:
 - 2 wherein the ownership table includes a world wide name for each of the storage
 - 3 devices, the world wide name being used to identify each of the storage devices.
- 1 42. (Previously Presented) The method of claim 6 wherein the small computer system
2 interface reservation tag and the ownership information at the predetermined area of the
3 disk indicate ownership by the same network device.
- 1 43. (Previously Presented) The method of claim 6 wherein the small computer system
2 interface reservation tag is a small computer system interface level 3 persistent reserva-
3 tion tag.
- 1 44. (Previously Presented) A method for a network device to manage ownership of one
2 or more storage devices in a network storage system, comprising:
 - 1 reading ownership information from a predetermined area of each storage device;
 - 2 accessing a small computer system interface (SCSI) reservation tag associate with
3 each storage device;
 - 4 comparing the SCSI reservation tag to the ownership information of the same
5 storage device and, if there is not a match, changing the SCSI reservation tag to match the
6 ownership information; and
 - 7 configuring the one or more storage devices for use by the network device.
- 1 45. (Previously Presented) The method of claim 44 wherein the small computer system
2 interface (SCSI) reservation tag is a small computer system interface level 3 (SCSI-3)
3 persistent reservation tag.
- 1 46. (Previously Presented) The method of claim 44 further comprising:

1 in response to reading the ownership information, creating an ownership table on
2 the network device that identifies the one or more storage devices owned by the network
3 device; and

4 using the ownership table to configure the one or more storage devices into at
5 least one volume.

1 47. (Previously Presented) The method of claim 44 further comprising:
2 setting ownership information at the predetermined area of each storage device.

1 48. (Previously Presented) The method of claim 44 further comprising:
2 wherein the predetermined area of the one or more storage devices is sector zero
3 of the one or more storage devices.

1 49. (Previously Presented) A network storage system, comprising:
2 means for reading ownership information from a predetermined area of each stor-
3 age device;
4 means for accessing a small computer system interface (SCSI) reservation tag as-
5 sociate with each storage device;
6 means for comparing the SCSI reservation tag to the ownership information of the
7 same storage device and, if there is not a match, changing the SCSI reservation tag to
8 match the ownership information; and
9 means for configuring the one or more storage devices for use by the network de-
10 vice.

1 50. (Previously Presented) A computer readable medium containing executable program
2 instructions for managing ownership of one or more storage devices, the executable pro-
3 gram instructions comprising program instructions for:
4 reading ownership information from a predetermined area of each storage device;

5 accessing a small computer system interface (SCSI) reservation tag associate with
6 each storage device;

7 comparing the SCSI reservation tag to the ownership information of the same
8 storage device and, if there is not a match, changing the SCSI reservation tag to match the
9 ownership information; and

10 configuring the one or more storage devices for use by the network device.

1 51. (Previously Presented) A network storage system comprising:

2 a plurality of disks having a first ownership attribute written to a known and con-
3 stant location across all the disks and a second ownership attribute in the form of a small
4 computer system interface (SCSI) reservation tag to provide a two part indicia of owner-
5 ship; and

6 a network device with an ownership layer for comparing the SCSI persistent res-
7 ervation tag to the ownership information stored in the known and constant location of
8 the same storage device and, if there is not a match, changing the SCSI persistent reserva-
9 tion tag to match the ownership information stored in the known and constant location.

1 52. (Previously Presented) A method for a network device to manage ownership of one or
2 more storage devices in a network storage system, comprising:

1 reading ownership information of each storage device from a known and constant
2 location across all storage devices;

3 accessing a small computer system interface (SCSI) reservation tag associate with
4 each storage device; and

5 comparing the SCSI reservation tag to the ownership information of the same
6 storage device and, if there is not a match, changing the SCSI persistent reservation tag to
7 match the ownership information stored on the storage device in the known and constant
8 location.

1 53. (Previously Presented) A method, comprising:

2 writing ownership information to a predetermined area of the disk to claim write
3 ownership by a first server;
4 setting a small computer system interface (SCSI) reservation tag to a state of the
5 first server ownership to provide a two part indicia of ownership for the first server; and
6 determining, by a second server, the disk is owned by the first server by reading
7 the ownership information in the predetermined area of the disk.

1 54. (Previously Presented) A method of claiming ownership of a plurality of disks by a
2 network device in a network storage system, comprising:
3 writing ownership information to a predetermined area of each disk;
4 setting a reservation tag for each disk to a state of network device ownership to
5 provide a two part indicia of ownership for each disk, where the two part indicia of own-
6 ership are both written to each disk;
7 identifying all disks owned by the network device using ownership information
8 written to the predetermined area of each disk of the plurality disks and, for each identi-
9 fied disk, if a mismatch occurs between the ownership information on the predetermined
10 area of the disk and the ownership defined by the reservation tag, then using the owner-
11 ship information written to the predetermined area of the disk as definite ownership data.

1 Please add new claim 55

1 55. (New) A method of claiming ownership of a plurality of storage devices by a network
2 device in a network storage system, comprising:

3 writing ownership information to a predetermined area of each storage device;

4 setting a reservation tag for each disk to a state of network device ownership to
5 provide a two part indicia of ownership for each storage device, where the two part indi-
6 cia of ownership are both written to each storage device;

7 identifying all storage devices owned by the network device using ownership in-
8 formation written to the predetermined area of each storage device of the plurality storage
9 devices and, for each identified storage device, if a mismatch occurs between the owner-
10 ship information on the predetermined area of the storage device and the ownership de-
11 fined by the reservation tag, then using the ownership information written to the prede-
12 termined area of the storage device as definite ownership data, wherein the network de-
13 vice modifies the reservation tag without interference from a second network device.